PATENT SPECIFICATION

(11) 1 453 476

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(21) Application No. 49980/73 (22) Filed 26 Oct. 1973
(31) Convention Application No. 2253083
(32) Filed 28 Oct. 1972
(31) Convention Application No. 2255834
(32) Filed 15 Nov. 1972
(31) Convention Application No. 2313342
(32) Filed 17 March 1973 in
(33) Germany (DT)
(44) Complete Specification published 20 Oct. 1976
(51) INT CL² A47B 96/00 F16B 12/10
(52) Index at acceptance
A4B 5A7B 5A7X 5A7Y 5AX 9B7 9B8 9B9
A4H W1X
F2M 205 233 245 247 248 A C2 D3 D7 E

(19)

(54) FURNITURE FOR HOMES, OFFICES, SHOW ROOMS, OR SIMILAR

(71) I, EBERHARD GOTTHARD RENSCH of Lerchesbergring 24, 6 Frankfurt am Main, Germany, a citizen of the Federal Republic of Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to articles of domestic or industrial furniture, i.e. furniture for homes, offices, show rooms or other industrial uses, and to kits of parts for making such articles. It is particularly applicable to furniture consisting of panels, bars, brackets, and connecting elements to combine the individual parts. Such furniture may be chairs, tables, office desks, wardrobes, office cabinets, shelves, display boards and many other things.

Furniture is already known comprised of bars, panels, brackets, and other elements connected by screwing, gluing, mortising, and grooving, by means of hinges, joints, and a number of other auxiliary means. Particularly for industrial furniture to be used in offices, workshops and locker rooms, panel elements are manufactured in such a way that frames consisting of profile bars are assembled, usually by welding, and that the open frames are filled by plate material, metal sheets, presswood boards, or wood panels of any type. Little attention is paid to the aesthetic effect. In some cases, the furniture is of the knock-down type so that it may be stored and shipped economically. To this requirement aesthetic effects are of a secondary order: screw heads are visible, and to a large extent even economic factors are neglected.

It is the object of the present invention and subsidiary features thereof to provide an article of, or a kit for making, furniture with a pleasant appearance and utilizing a small number of types of basic elements whilst aspects of economic production as well as simple and uncomplicated assembly and disassembly are preserved.

According to the invention there is provided an article of domestic or industrial furniture or a kit of parts for making such an article, which article or kit includes a structural component, namely a socket member, comprising an extruded bar whose cross-section or a part thereof is substantially of "H" shape with the parallel flanges of unequal width so that a pair of handed identical slots are formed at opposite sides of and symmetrical with respect to the central web which forms the base of each slot and whose width is less than that of the narrower flange, the parallel flanges, having their edges bevelled in such manner that adjacent edges are bevelled in a common plane, the two common planes intersecting each other in the plane containing the connecting web of the "H" cross-section.

The angle of bevel of the edges of the parallel flanges is preferably 45° to the plane containing the connecting web of the "H" cross-section.

The term "profiled extrusion" as used hereinafter means an extruded component of constant cross-section. The term "basic profile" as used hereinafter means a cross-section common to more than one component of the article of furniture or the kit. The basic profile of the article or the kit is the "H" cross-section above referred to. As compared with a conventional "I" cross-section, the "H" section has a connecting web which is not the longest element of the cross-section, and this cross-section is

excellently suited to receive coupling members to produce various assemblies of pleasant appearance. It is well suited to production by extrusion and may therefore be manufactured cheaply and quickly in any desired lengths and held in stock. The said pair of slots are handed and identical within the tolerance limits of the extrusion method.

In those cases where supports such as legs of chairs and tables, supports of shelves and similar struts or stays are required for any piece of furniture, polygonal, and more particularly quadrangular, hollow tubular bars are used which are composed of the required number of basic profiles, the main flanges of which meet each other at an angle. The hollow tubular bars may be integrally extruded with the flanges of the basic profiles solid with each other. It will, however, also be possible to assemble the tubular bars from basic profiles which are held together by means of coupling members or connecting elements inserted into the slots of adjacent basic profiles. Also, further connecting elements may be inserted in the slots of the bars for connection with panel elements, brackets, or any other parts of a piece of furniture.

According to a further feature, the article of furniture or the kit includes a panel bordered along one edge, or each of a plurality of edges, by a basic profile (socket member) which is connected to the panel at the inside by means of a further pair of integral flanges formed on the "H" section and projecting normal to the larger parallel flange thereof and parallel to the central web thereof, the further pair of flanges defining a third slot. At the corners of such a panel at which a pair of such socket members meet, planar coupling elements may be inserted into the third slots to join the socket members firmly together. Alternatively, the flanges of said further pair have inwardly turned terminal edges opposed to each other parallel to the larger parallel flange of the "H" section, and a right-angled coupling member or bracket is provided for insertion in the third slots of two adjacent socket members at a corner of the panel.

The panel may comprise a frame composed of such socket members joined by coupling elements. The space which is enclosed by the frame may be filled with any suitable panel material, for example synthetic plastics foam, while the further pair of flanges serve to support the panel material enclosed thereby.

In one construction of such a panel framed by basic profiles, the ends of the further pair of flanges are inclined at an angle outwardly at either side in the direction of the panel surfaces. A filling may be inserted to form the body of the panel element in the area framed by the basic profiles and preferably also fills the slot formed by the further pair of flanges. For example, polystyrene may be foamed into the said area of panelled press-board may be pressed into it. At least on one side the filling of the panel element may be covered with a coating (veneer or foil) to impart a decorative appearance.

The main structural feature of the basic profile, i.e. twin slots each side of the web, is highly advantageous when assembling an article of furniture, since the members of the article embodying such a profile can be held together in each case by a structural coupling element. As an alternative to the couplings described above, connecting angle brackets engaging in slots of the basic profiles may be used for assembling the frame of a panel. In the following, further practical examples are described with reference to the accompanying drawings in which:—

Figure 1 is a cross sectional view of a component having a basic profile;

Figure 2 is another embodiment having the basic profile;

Figure 3 is a third embodiment having the basic profile;

Figures 4 and 4*a* are fourth and fifth embodiments having the basic profile to be used as a bar;

Figure 5 shows the basic profile according to Figure 3 at the corner of a frame during assembly;

Figure 6 shows said corner of a frame according to Figure 5 after assembly;

Figure 7 shows the basic profile according to Figure 2 at the corner of a frame during assembly;

Figure 8 shows said corner of a frame according to Figure 7 after assembly;

Figure 9 and Figure 9*a* show a connecting bracket at the corner of a frame according to Figures 5 and 6 in a plan and in a sectional view;

Figure 10 shows end and plan views of a connecting angle bracket similar to that in Figures 7 and 8;

Figure 11 shows a table during and after assembly in perspective views;

Figure 12 shows a section and an elevation of one embodiment of a detail according to Figure 11;

Figure 13 is a sectional view of another embodiment of a detail according to Figure 11;

Figure 14 is a front view of a table corner according to Figure 11;

Figure 15 shows an embodiment of a wall rack with shelving;

Figures 16 to 20 are details of the wall rack according to Figure 15 in perspective views;

Figure 21 is a view in part cross-section of a detail of Figure 15;

Figure 22 shows a display shelf rack in perspective;

Figure 23 shows a detail of Figure 22;

Figure 24 shows two basic profiles according to Figure 2 with clamping means for coupling together two panel elements;

Figures 24*a* and 24*b* are details of another assembly similar to that in Figure 24, but shown on a large scale;

Figure 25 shows part of a display wall in perspective;

Figure 26 is a front view of another display wall rack;

Figure 27 shows, in perspective, a compartment unit before assembly;

Figure 28 shows the unit according to Figure 27 after assembly;

Figure 29 shows a shelf assembly composed of units according to Figures 27 and 28;

Figure 30 shows a detail of the assembly according to Figure 29; and

Figure 31 shows another detail of the assembly according to Figure 29.

The drawings show examples of components which comprise the basic profile in accordance with the invention, other components which may be used together with those which include the basic profile, assemblies and articles of furniture made up of such components and capable of being provided as assembled articles, or as kits of parts for making such articles.

The cross-section of the extruded basic profile 1, as seen best in Figure 1, shows that said profile is of modified "H" form in cross-section and comprises a wide flange 2, a narrow flange 3, and a web 4 connecting these main flanges which are parallel to each other. The flanges 2, 3 and web 4 define two identical and opposite slots 5 (i.e. handed identical slots) which are open towards opposite directions and have a common base 6 at the web 4. Along the edges 8 of the flanges 2 and 3 the basic profiles are bevelled, preferably at 45°, in two common planes intersecting in the central plane containing the web 4 of the basic profile.

This basic profile 1 is also to be found in the modified basic profiles according to Figures 2, 3, 4 and 4*a*.

The modified basic profile according to Figure 2 is additionally provided with a further pair of flanges 16 projecting normal to the back of the main flange 2, said further pair of flanges 16 themselves having inwardly turned terminal edges 17 extending inwardly normal thereto and serving as anchoring flanges as explained later. The further flanges 16 and the main flange 2 define a third slot.

In Figure 3 the back of the main flange 2 of the modified basic profile 1*a* is provided with a further pair of flanges 9 also defining a third slot 10 between them. The terminal edges 11 of the flanges 9 are turned slightly outwards at an angle and may be further provided with lugs 12 extending away from each other. These further flanges 9 may also serve as clamping flanges as will be described later. It can be seen that the basic profile 1 of Figure 1 is incorporated in the modified basic profile 1*a*.

Figure 4 shows an integral extruded quadrangular tube which may be used as a support. The four lateral walls of said tube 7 are each the basic profiles 1, these merging into each other at the edges 8 of their longer flanges 2. Figure 4*a* shows an extruded triangular tube consisting of the same basic profiles.

Figure 5 shows a part of the frame of a panel element, which frame is produced from four basic profiles, indicated by the reference 1 and corresponding to those shown at 1*a* of Figure 3. First the ends of the basic profiles are cut to form a mitre 18 and then a planar coupling element or connecting plate 14, which is shown in Figures 9 and 9*a*, is inserted into the respective third slots 10 adjacent to the mitre 18. The surface of the plate 14 is ribbed with saw teeth 20 (Figure 9*a*) on both sides. Plate 14 and basic profiles 1 are pushed together so that, within the area of the mitre 18, the slots 10 are completely filled by the plate 14, as shown in Figure 6. The body of the panel element may be formed as hereinbefore described as "one construction of such a panel framed by basic profiles".

The embodiment according to Figures 7 and 8 illustrates the method of producing a corresponding frame from the modified basic profiles according to Figure 2. Again in this case the ends of the basic profiles are cut to form a mitre 18. A right-angled coupling member or connecting angle bracket 19 is inserted with its legs located to enter the respective slots defined between flanges 16, 17 and 2 as in Figure 7 and the basic profiles are then pushed together to form the corner of a frame according to Figure 8. This connecting bracket 19 may also be provided with serrations 20, 21 on the surface of its flanges as shown in Figure 10.

The coupling plate 14 of Figures 5 and 6 is shown in Figure 9 and on a larger scale in Figure 9*a*, provided with teeth 20 having cutting edges 21 extending vertically and transversally with respect to the line A—B along which the plane of the mitre 18 of the frame is located.

Figure 9*a* is an enlarged sectional view along the line A—B. The teeth are defined by 20, their cutting edges by 21.

The assemblies now to be described contain components additional to the basic profiles having the "H" cross-section.

Figure 11 shows a table comprising four legs *St*, four rails or brackets 28, and a table top 23 whose edges are enclosed by basic profiles 1. The brackets 28 may be as shown on a larger scale in Figures 13 and 14, which are similarly slotted at 27.

The form of bracket 28 shown in Figure 13 is of "T" cross-section, comprising a vertical flange 24 and a horizontal flange 26, with an upright edge or vertical right-angled extension 25. The vertical slot 27 (the position of which is visible in Figure 12) is provided bear each end of the main flange 24 of the bracket 28. Each end of the main flange 24 is inserted into the pair of opposite identical slots of one of the basic profiles 1 of a square-section tube-like bar having the cross-section 7 according to Figure 4 and constituting the table legs *St*, the slot 27 fitting over the web 4 of the basic profile. Above the brackets 28 a table top 23 is shown bordered by basic profiles 1 along its edges. When the table top 23 is lowered on to the frame consisting of four legs *St* and four brackets 28, its bottom side rests on the top side of the horizontal flanges 26 of the brackets 28 and the slots 5 of the basic profile 1 receive the upright edges 25 of the brackets.

The bracket 22 according to Figure 12 is basically similarly designed and employed, but is of inverted "L" cross-section, comprising a vertical flange 24 and a horizontal flange 26, with an upright edge or vertical right-angled extension 25. The main vertical flange 24 has slots 27 like those of the bracket 28 in Figure 13.

Figure 14 shows an elevation of a part of the table frame with the brackets 28 and the legs *St*. The web 4 of a basic profile in a leg *St* is shown by dotted lines while the surface of the smaller flange 3 of the basic profile is shown in a front view. Slot 27 receiving the web 4 of the bar *St* is shown by other dotted lines.

Figure 15 shows a rack of wall shelving which includes upright rails according to Figures 16 and 17 and brackets according to Figures 12, 13 and 18. Apart from the brackets the shelving comprises upright wall rails 30, spacers 31, and shelf panels 32. The wall rails are rigidly attached to the wall in a known manner (not shown) at a spacing defined by the length of the shelf panels 32. The other components are attached to the wall rails or are connected to one another by interfitting connections without screwing or gluing. The wall rail according to Figure 16 has a plane rear surface 35, two lateral surfaces 36 and, at the front surface 37, a longitudinal slot 38 of dovetail section. The wall rail may be produced from synthetic material or metal by extrusion.

The spacer 31 according to Figure 17 is also an extruded profile the cross-section of which is tubular. A dovetail tongue 40 at the rear surface 39 engages the dovetail slot 38 of the wall rail 30. The tubular profile of the spacer 31 is defined by the rear wall 39, the two side walls 41 and the front wall 42. Along the centre line, on the inside of the rear wall 39 and the front wall 42, slots 43 extend which are defined between ribs 44.

The bracket 33 according to Figure 18 has a substantially "T" shaped cross-section. The "T" section bracket comprises a crossbar flange 26 and a main flange 24 in which a guide element 47 is formed by means of a slot 27. Along the free edges of the flange 26, upstanding flanges or vertical right-angled extensions 25 are provided, along the edges of which beads 50 are provided. The bracket 24 is extruded; the slot 27 is produced by sawing or milling.

Figure 19 shows a portion of a wall rail 30, a spacer 31, and a bracket 33 prior to assembly. Assembly results in a shelf support as shown in Figure 20. The bracket 33 is held between two spacers 31, the dovetail part 40 of which is inserted into the dovetail groove 38 of the wall rail 30. The upper and lower faces of the two spacers bear against the lower and upper surface of the flange 26 of the bracket 33. The width of their front faces 42 is smaller than the inner distance A between the upright flanges 25 of the bracket 33.

There is sufficient sideways clearance for a shelf panel 32 to be supported on each upright flange 25 (see Figure 21) or on one of the flanges 25, as shown in Figure 20, said shelf panel having an edge bar of the basic profile cross-section shown in Figure 1 so that the bracket edge 25, 50 is received in a lower slot 5 of the basic profile formed between the flanges 2 and 3 thereof, with the web 4 resting on the bead 50. The rear surface 35 and the front surface 37 of the wall rail 30, also the rear wall 39 and the front wall 42 of the distance piece 31, are of the same width. The distance "A" (Figure 20) between the two flanges 25 of the bracket 33 is so much wider than the surfaces 35 and 42 that each flange 25 can freely receive the flange 3 of the basic profile bordering the shelf panel 32, engaged behind it, and the panel 32 may extend from the front end of the bracket right back to the wall. The shelf panel 32 comprises a frame composed of basic profiles as already described, said frame being filled with plastic foam as will be described later and coated at least on its top surface with a foil 34 of metal, or a sheet of synthetic material or textile material.

The assembly, which has been shown in

Figure 20 in perspective view, is shown in Figure 21 in a partial section to demonstrate how two shelf panels 32 are supported on a bracket 33. The structure comprises a lower and an upper spacer 31 respectively supporting and supported on the cross-bar flange 26 of the T-profile of the bracket 33. The drawing of Figure 21 does not show that the guide element 47, separated from the main central flange 24 by means of a slot 27, has been inserted into the box profile of the lower spacer 31, but this will be evident from Figures 18 and 20.

The basic profile 1 of the frame which borders the two shelf panels 32 is also shown in a sectional view. The lower one of the slots 5, formed between the flanges 2 and 3 of the basic profile 1, embraces the flange 25 and the beaded edge 50 of the bracket 33 whilst leaving a clearance "S" between the outer flange 3 of the basic profile and the lateral wall 41 of the spacer 31. The inner span "A" (Figure 20) between the flanges 25 carrying the beads 50 is sufficiently wide for this purpose.

The end brackets of each run of shelves are referenced 22, 28 in Figure 15 because, although the drawing shows them as "T" shaped like the central brackets 33 which each support two shelf panels 32, the end brackets are preferably of inverted "L" shape with vertical right-angled extension, like the bracket 22 in Figure 12, or of "T" shape with a single vertical right-angled extension, like the bracket 28 in Figure 13.

Connection of the wall rail 30 and the spacers 31 by means of the dovetail joint 38, 40, and connection between the spacers 31 and the brackets 22, 28 or 33 by means of the guide element 47 within the grooves 43 of the spacer, results in a rigid shelf frame into which the shelf panels 32 are inserted in the simplest manner.

Figure 22 shows a display wall stand comprising two upright bars *St* consisting of the tube 7 according to Figure 4 supporting the brackets 22 or 28 with horizontal shelf panels 32 as well as similar vertical panels 32 at different heights. The brackets 22 or 28 have vertical slots like the slot 27 of Figure 12, but these are not visisble in the drawing. The bars *St* are provided with feet 53 for preserving the upright position of the display stand. The feet 53 (Figure 23) have a U-shaped cross-section with flanges 54 and a base 55 into which adjusting screws 56 are fitted, by means of which the upright position of the display stand is adjusted.

In Figure 24 a pair of panel support elements having the basic profiles 1 according to Figure 2 are shown, these support elements being connected by pairs of connecting clips or clamps 69 whose backs 71 are located in the plane of the panel surfaces after connection. The connecting clips are each of U-shaped cross-section comprising two flanges 70 and a base 71, and two upright legs 72 and 73 are additionally provided on the base 71 within the U-profile. Said legs 72 and 73 are provided with interlocking teeth 22*a*, 23*a*. In each instance two connecting clips are connected with each other by means of said teeth. The positions of the legs 72 and 73 with respect to the flanges 70 are staggered and dimensioned such that the flat back of a leg 73 is solidly pressed against the surface of each respective flange 3 of the basic profile 1 of the pair of elements to be connected. Anti-slip strips 64 are inserted into the slots 5 of the basic profiles into which the clip flanges 70 are socketed.

Figure 25 shows how a bar *St* can be connected to panels P by clipping with two clips 69 in the manner above described (similar to Figure 24). This bar *St* is a basic profile similar to the tube 7 in Figure 4 in which the basic profile 1, comprising parallel flanges 2, 3, web 4, and slots 5, is repeated four times. Clipping is effected by using the same elements 64, 72, 73 as described above with respect to the assembly in Figure 24.

The partial view of the shelf according to Figure 26 incorporates a vertical panel P bordered by a rail having the basic profile. In addition, it comprises two brackets having flanges 24 and slots 27 like those in Figure 12 or 13, which are connected by means of two connecting clips 69, 71 (similar to Figure 24).

A modification of the clip coupling according to Figures 24, 25 and 26 is shown in Figures 24*a* and 24*b*. 94 indicates each of a pair of clips which are secured together by a screw (not shown) which passes through bores 96. Each clip 94 is provided with two parallel slots 95 by means of which it is pushed onto the smaller flanges 3 of the basic profiles 1 of two panels P to be connected together. Such clips are provided on both sides of the profiles 1, as shown. The screw (not shown) passing through the bores 96 ensures the rigid connection of the panels P via the clips 94.

The same pairs of clips 94 may be used, instead of the interlocking clips 69 and anti-slip strips 64 of Figure 24, to connect bars *St* and panels P according to Figure 25.

In Figure 27 four panels P and pairs of connecting angle brackets 19 (Figure 10) are ready for the assembly of a compartment. The manner of assembly is shown, for example, in Figure 31. On the surfaces of the legs of the connecting angle bracket 19 according to Figure 10 the cutting edges 21 of the saw teeth 20 are directed transversally with respect to the main axis of the legs. The assembled compartment is shown in Figure 28.

Figure 29 shows a storage unit composed of the compartments according to Figures 30 and 31. It is also possible to stack up a number of individual compartments on top of each other and side by side. By means of the panels P and the connecting angle brackets 19 it will also be possible to assemble, as shown in Figure 29, box type open shelving or any other piece of furniture consisting of walls defining box-like compartments to form a rigid unit which may maintain its shaper permanently.

Figure 30 shows the junction of four panels P1, P2, P3, P4, the basic profiles of their enclosures or frames contacting each other. Rigid connection is effected by inserting the connecting angle brackets 19 into the corresponding slots 5 of the basic profiles. The basic profile used in this case has already been described with reference to Figure 2. The pair of further flanges 9, projecting normal to the larger flange 2 of the basic profile, extends inwardly with respect to the frame. The area within the frame of the panel P has been filled with hard polystyrene foam. The foam penetrates and is bedded into the slot 10 between the further flanges 9 and forms an adhering bond therewith and especially along the lugs 12. On both sides a foil 34 covers the foam 15 for protective purposes, on the outside of which a further layer of foam may be provided, as shown, if desired.

Figure 31 shows the construction of a corner of the same piece of furniture and of the compartment of Figures 27 and 28. Two panels P are connected to each other at an angle of 90° while the edges of the larger flanges 2 and of the smaller flanges 3 of the basic profiles 1 forming their enclosures also contact each other. Rigid connection between the two panels P is effected by inserting the connecting angle brackets 9 into the open ends of the slots 5 meeting at a right angle and formed between flanges 2 and 3. For additional security a locking pin 95 may penetrate the flanges 2 and 3 and a leg of the connecting angle bracket 19 within a slot 5 of the corresponding profile 1.

WHAT I CLAIM IS:—

1. An article of domestic or industrial furniture or a kit of parts for making such an article, which article or kit includes a structural component, namely a socket member, comprising an extruded bar whose cross-section or a part thereof is substantially of "H" shape with the parallel flanges of unequal width so that a pair of handed identical slots are formed at opposite sides of and symmetrical with respect to the central web which forms the base of each slot and whose width is less than that of the narrower flange, the parallel flanges having their edges bevelled in such manner that adjacent edges are bevelled in a common plane, the two common planes intersecting each other in the plane containing the connecting web of the "H" cross-section.

2. An article of furniture or a kit according to Claim 1, wherein the angle of bevel is 45° to the plane of the web.

3. An article of furniture or a kit according to Claim 1 or 2, including a panel bordered by such socket members having, in addition to the pair of opposite slots, a third slot formed between a further pair of integral flanges projecting normal to the back of the larger parallel flange and parallel to the central web.

4. An article of furniture or a kit according to Claim 3, also including a coupling member inserted in the third slots of two adjacent socket members at a corner of the panel.

5. An article of furniture or a kit according to Claim 4, wherein the coupling member is planar.

6. An article of furniture or a kit according to Claim 4, wherein the flanges of said further pair have inwardly turned terminal edges opposed to each other parallel to the larger parallel flange of the "H" section, and the coupling member is right-angled for insertion in the third slots of the two adjacent socket members at the corner of the panel.

7. An article of furniture or a kit according to Claim 3, wherein the panels have a filling of hard polystyrene foam which is bedded into the third slots.

8. An article of furniture or a kit according to Claim 3, wherein the panels are externally covered with a metallic or non-metallic cladding.

9. An article of furniture or a kit according to any one of the preceding claims including also a tubular component whose cross-section resembles that of at least three such socket members of "H" section assembled symmetrically with respect of the tube axis with main flanges of each "H" section forming equal angles with adjoining main flanges.

10. An article of furniture or a kit according to Claim 9, wherein the tubular components are integrally extruded.

11. An article of furniture or a kit according to any one of the preceding claims, including brackets of "T" shaped or inverted "L" cross-section, whose horizontal cross-flanges have at least one vertical right-angled extension insertable into one of the pair of opposite identical slots of the "H" section of a socket member.

12. An article of furniture or a kit

according to Claim 11, wherein the main vertical flange of the brackets is vertically slotted at least at one end to allow the side edges of the flange slot to be engaged with opposite sides of the web of the "H" when the vertical flange is fitted into the two opposite identical slots of a vertical support member embodying the "H" cross-section.

13. An article of furniture or a kit according to Claim 11 or 12, when dependent on Claim 9 or 10, having four of the tubular components serving as legs interconnected or interconnectable by the horizontal brackets "T" or inverted "L" cross-section to form a table framework surmounted by a panel or plate forming the table top with its edges fitted with or formed as such "H" section socket members, said table being erected by inserting the main vertical flanges of the brackets into the opposite identical slots of the socket member portions of the respective legs, with a vertical slot over the web of the socket member, and by inserting the vertical right-angled extensions of said brackets, which interconnect the legs, upwardly into the downwardly directed slots of the "H" section socket members bordering the panel or plate which forms the table top.

14. An article of furniture or a kit according to Claim 11 or 12, when dependent on Claim 9 or 10, having a plurality of the tubular components serving as vertical supports to which the "T" or inverted "L" cross-section brackets are connected as horizontal cantilevers to form a wall rack with shelves consisting of panels or plates extending horizontally between the brackets, said rack being erected by inserting one end of the main vertical flanges of each shelf bracket vertically into the opposite identical slots of an "H" section socket member of a vertical support so that the slot in said main vertical flange fits over the web of said cooperating socket and by inserting the vertical right-angled extension of said "T" or inverted "L" section bracket into the downwardly directed slot of an "H" section socket member bordering a shelf.

15. An article of furniture or a kit according to any one of Claims 1 to 10, including pairs of connecting clamps of "U" cross-section, each clamp of a pair having its flanges engageable in respective ones of the opposite identical slots of two adjacent "H" section socket members positioned at either side of an intervening pair of clamps.

16. An article of furniture or a kit according to Claim 15, wherein the clamps couple together, edge to edge, a number of coplanar panels bordered by respective "H" section socket members.

17. An article of furniture or a kit according to Claim 15, wherein the clamps couple together a panel or plate and a support member parallel to one edge of the panel or plate, which edge and support member comprise respective "H" section socket members.

18. An article of furniture or a kit according to any one of the preceding claims, including right-angle brackets for connecting together panels or plates in planes normal to each other, the panels being bordered by "H" section socket members, of which one of the pair of slots belonging to two adjacent panels or plates receives the flanges of a respective angle bracket.

19. An article of furniture or a kit according to Claim 18, including at least four panels or plates bordered by "H" section socket members and also including coupling members of right-angle cross-section whose flanges are fitted into the respective slots belonging to adjacent panels or plates to form a box type article of furniture.

20. An article of furniture or a kit according to Claim 18 or 19, including panels or plates bordered by "H" section socket members and also including coupling members of right-angle cross-section whose flanges are fitted into the respective slots belonging to adjacent panels or plates to form open box type shelving, in which the panels of plates are connected in series in the vertical and horizontal directions.

21. An article of furniture or a kit as claimed in Claim 1, substantially as hereinbefore described with reference to the accompanying drawings.

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Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1976
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

1453476 COMPLETE SPECIFICATION
18 SHEETS *This drawing is a reproduction of the Original on a reduced scale*
Sheet 1

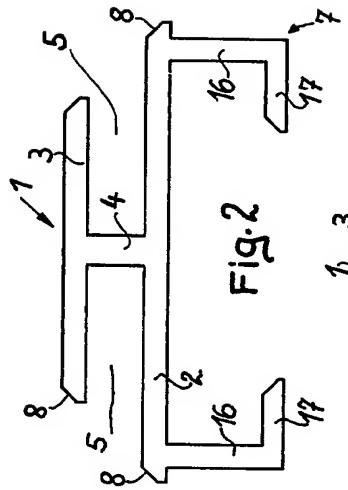

Fig. 2

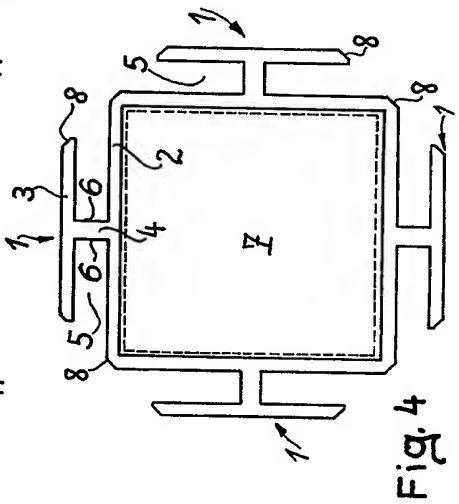

Fig. 4

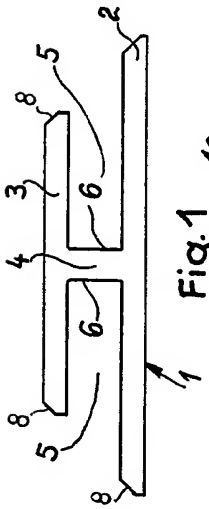

Fig. 1

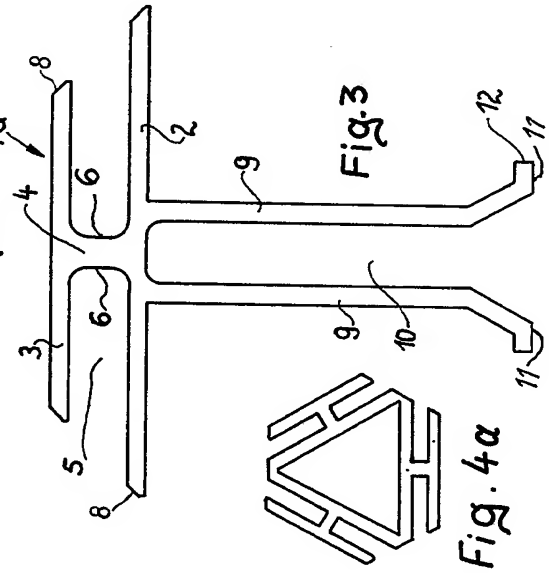

Fig. 3

Fig. 4a

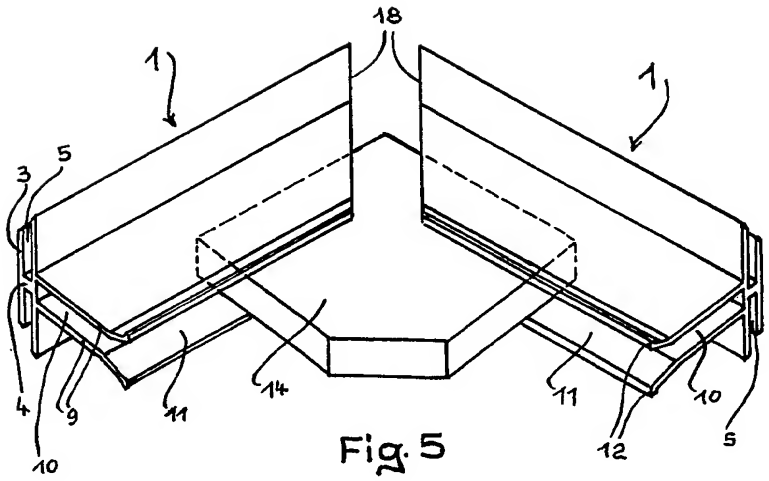

Fig. 5

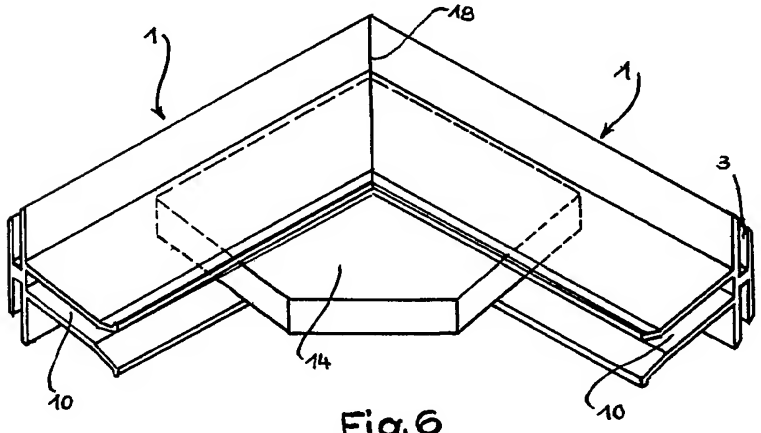

Fig. 6

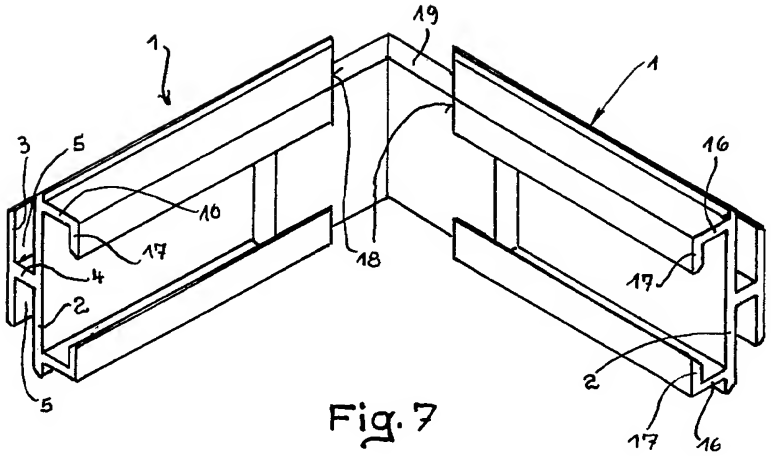

Fig. 7

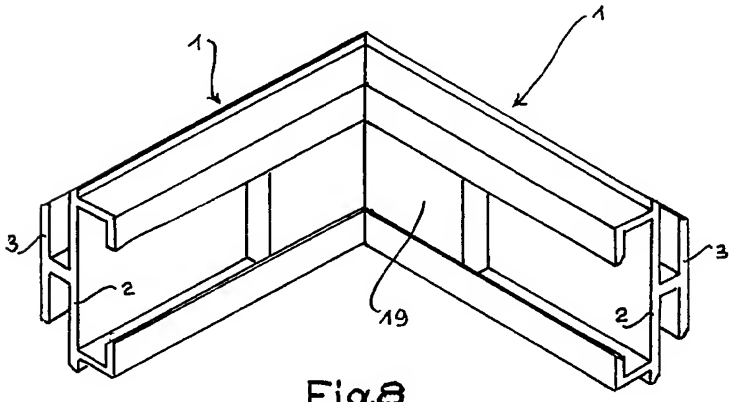

Fig.8

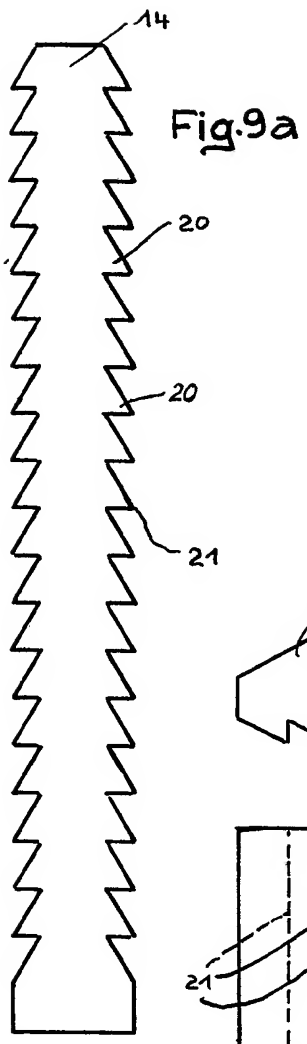

Fig.9a

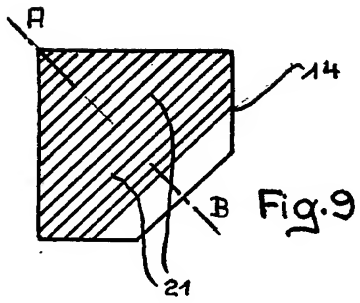

Fig.9

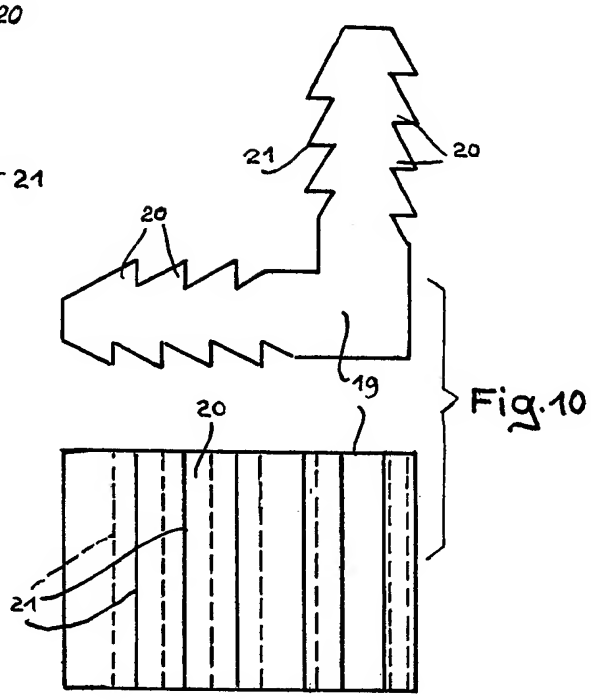

Fig.10

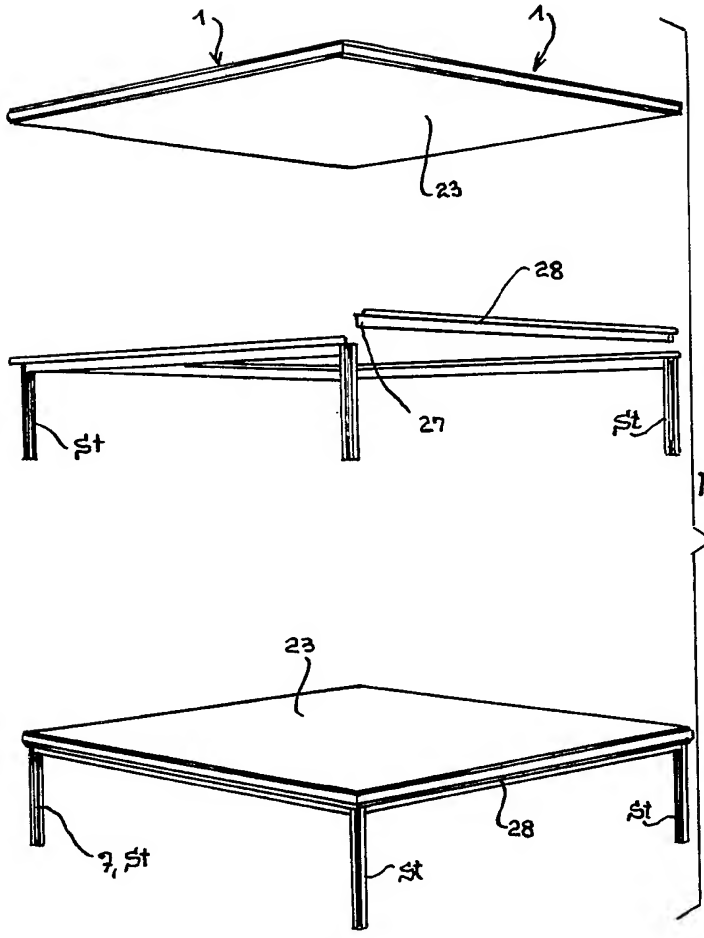

Fig. 11

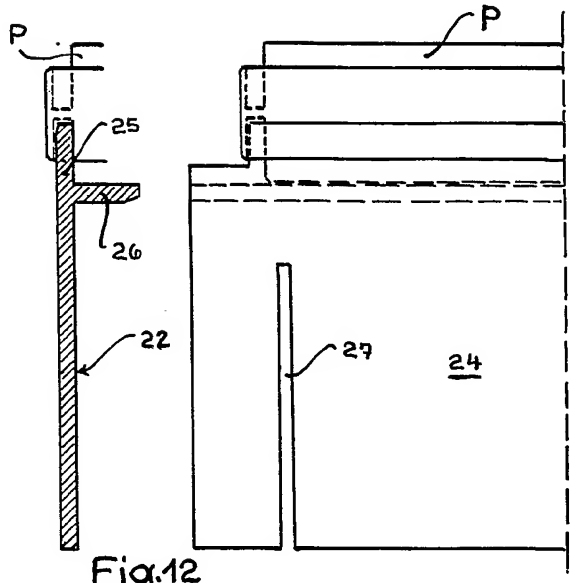

Fig.12

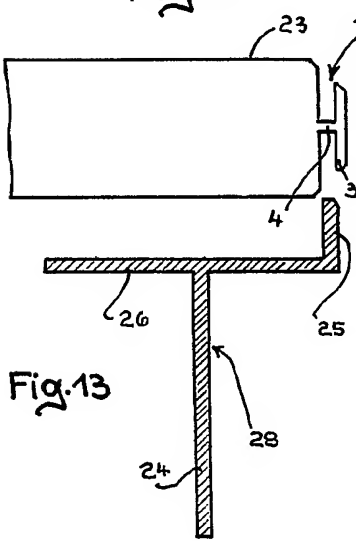

Fig.13

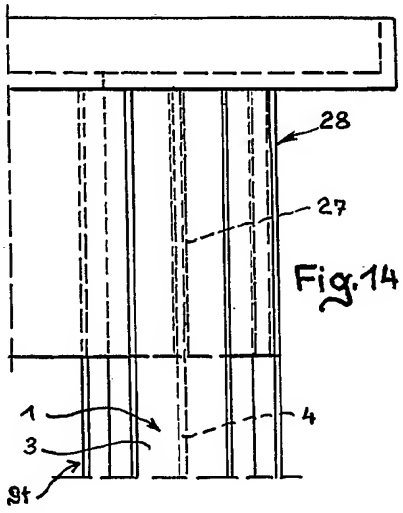

Fig.14

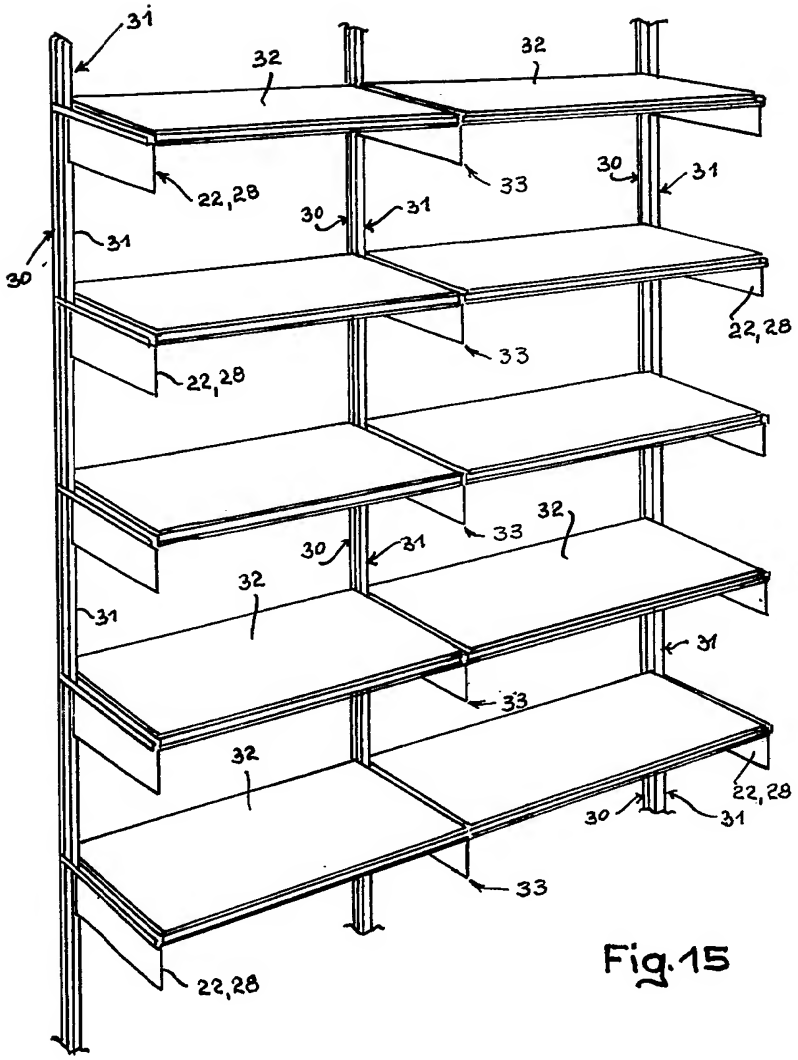
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Fig.15

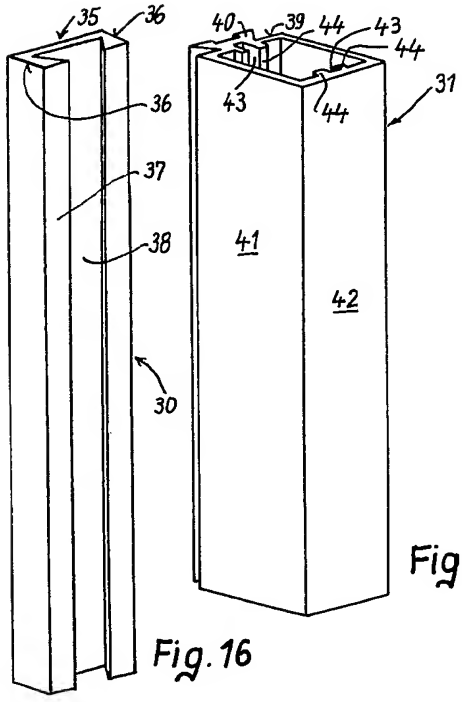

Fig. 16

Fig. 17

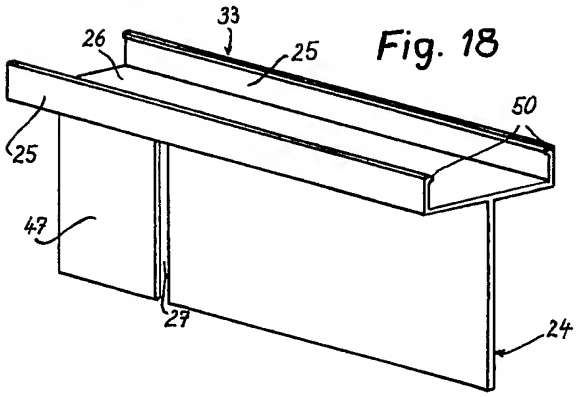

Fig. 18

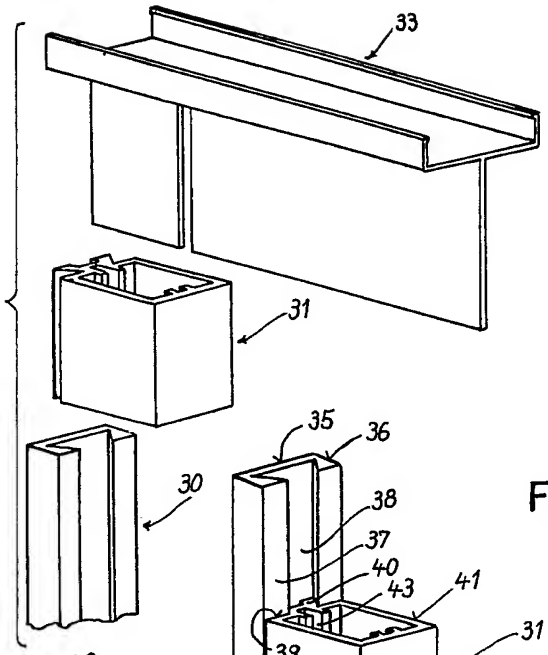
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Fig. 19

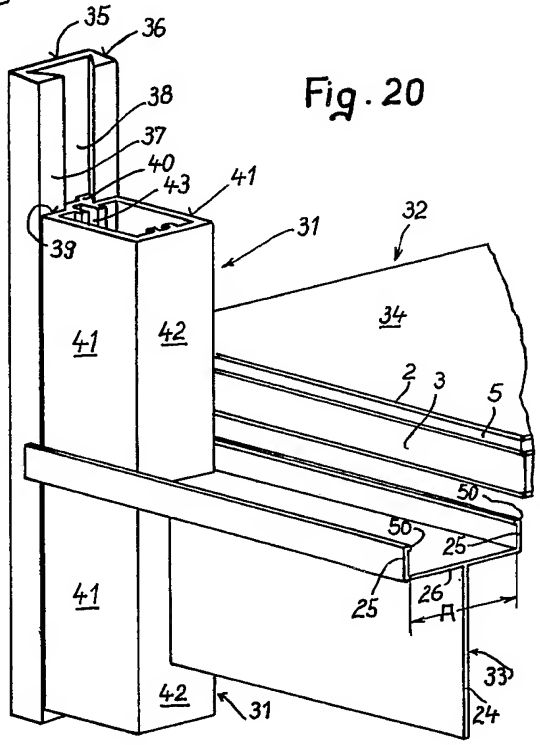
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Fig. 20

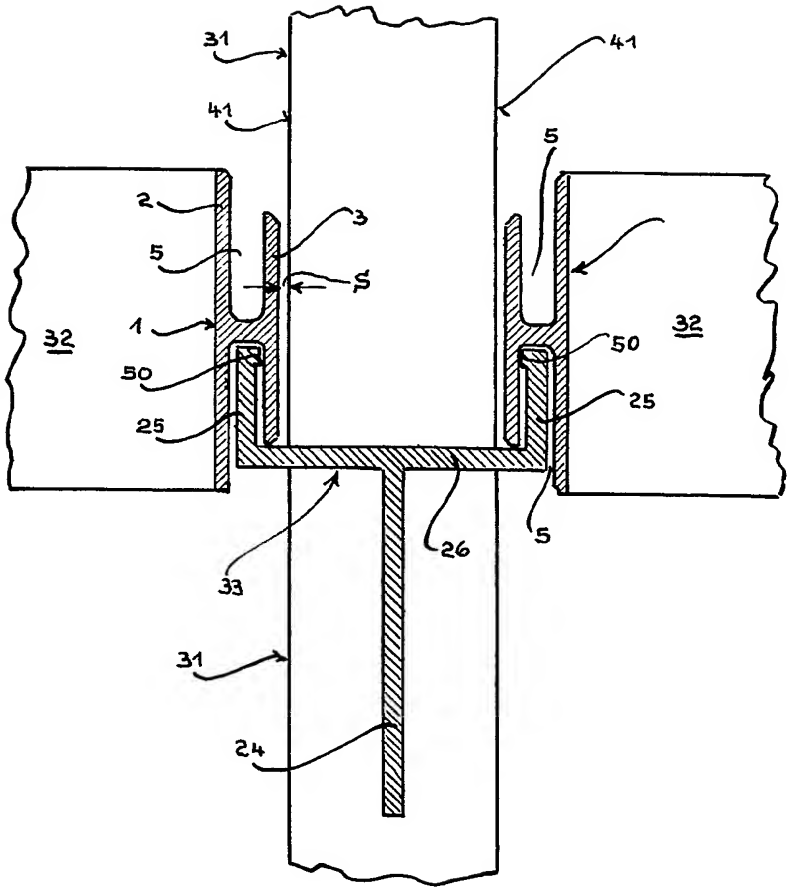


Fig. 21

1453476 COMPLETE SPECIFICATION
18 SHEETS *This drawing is a reproduction of the Original on a reduced scale*
Sheet 11

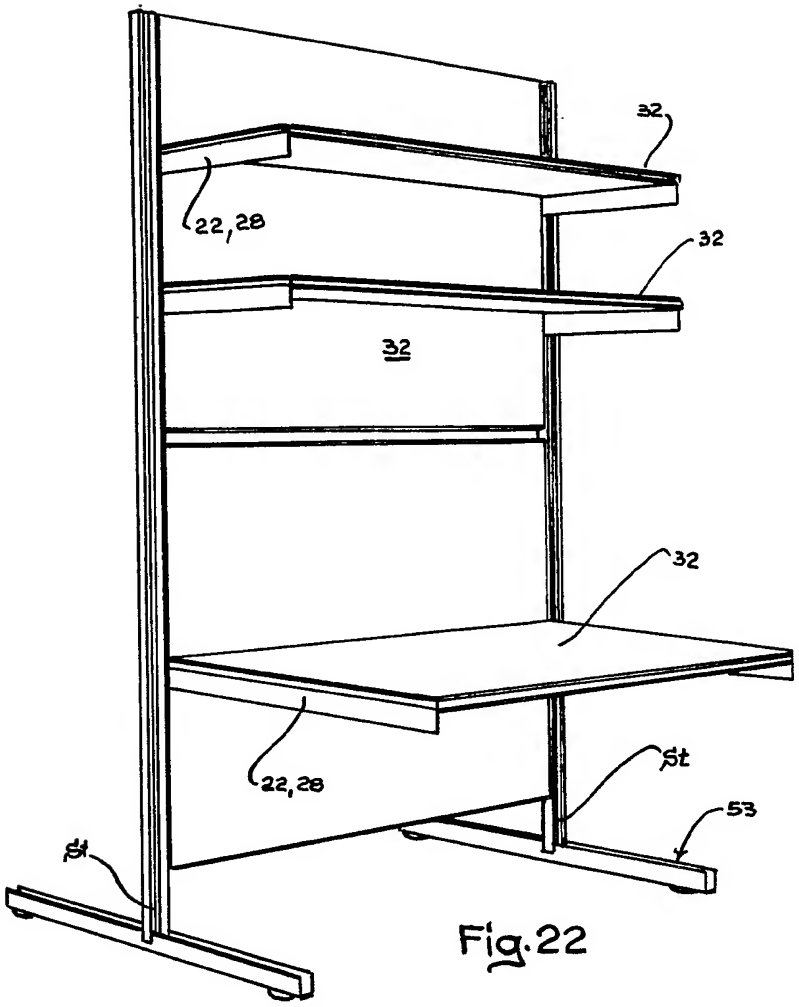


Fig.22

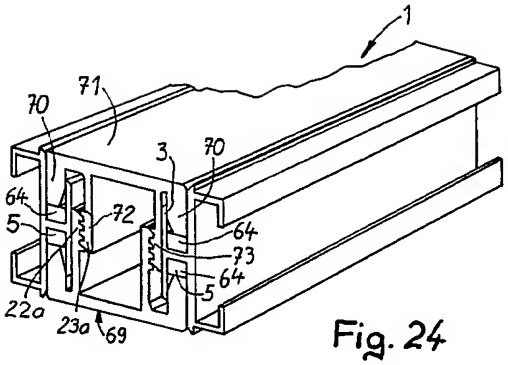
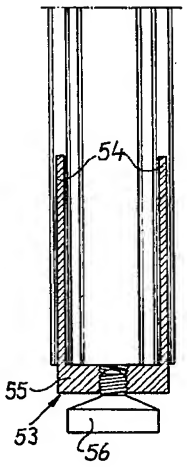


Fig. 24

Fig. 23



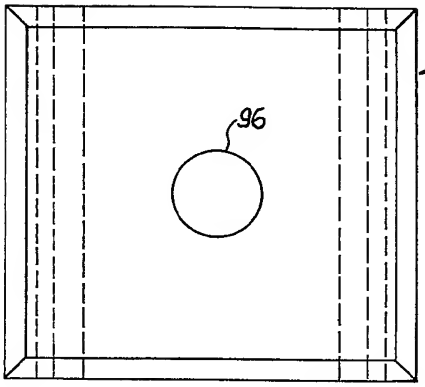
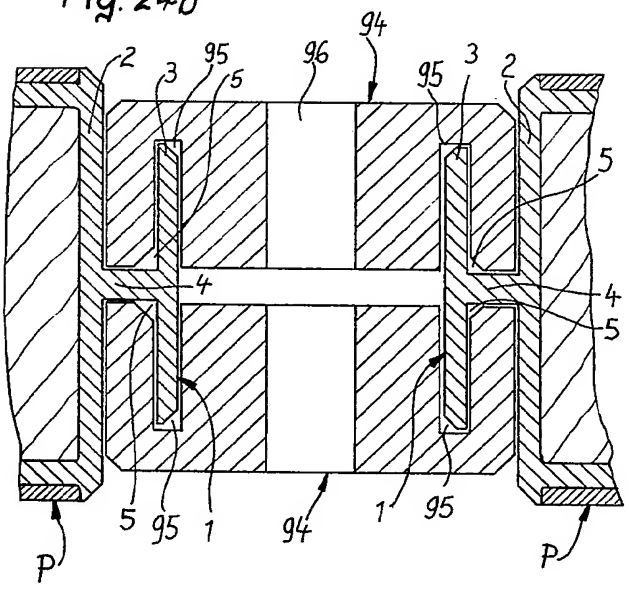


Fig. 24a

Fig. 24b



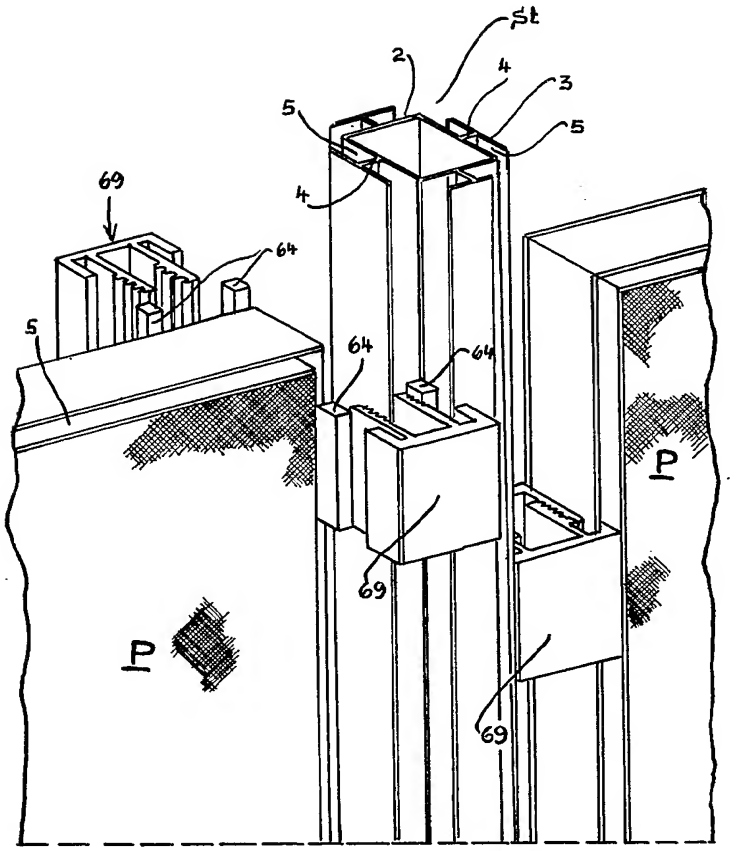


Fig. 25

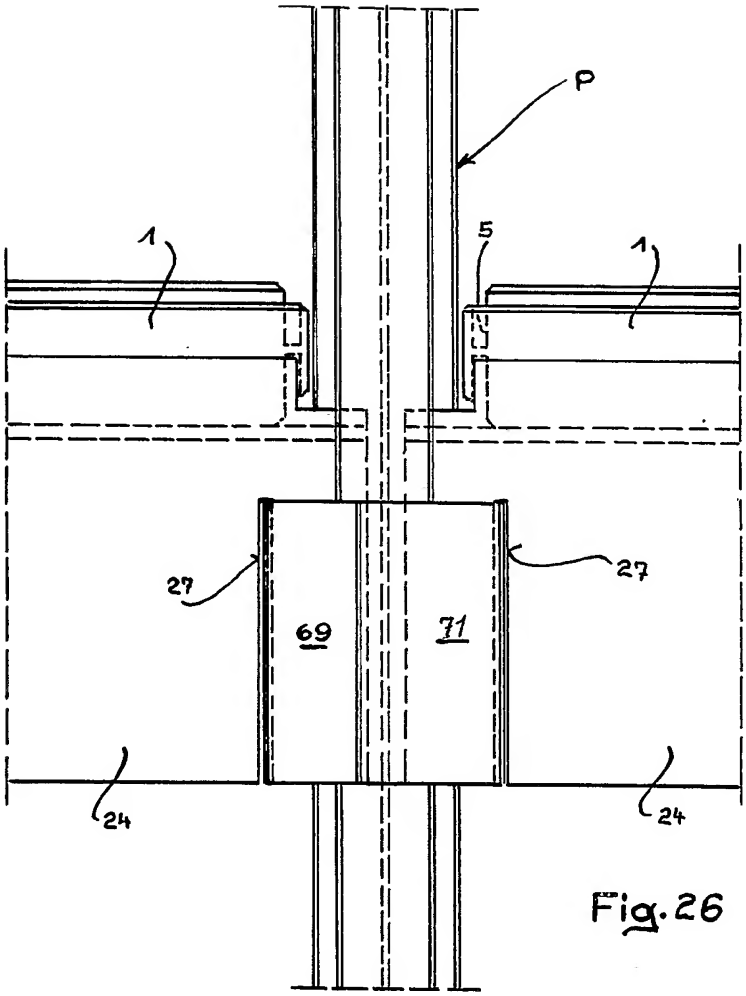


Fig. 26

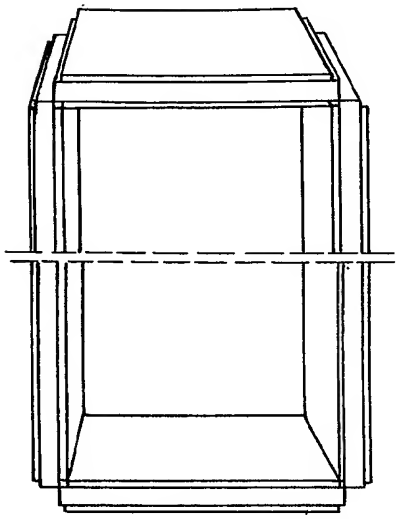


Fig.28

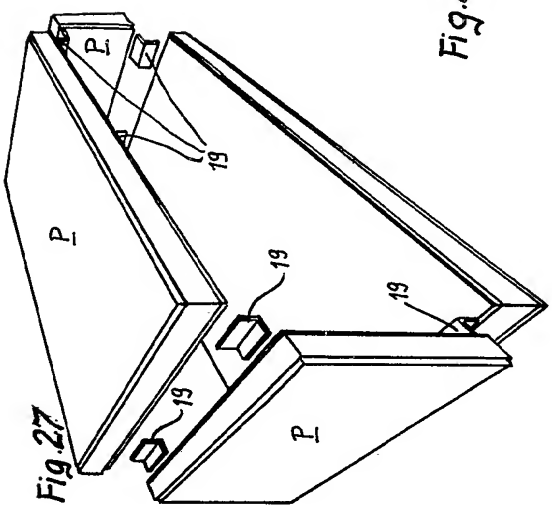


Fig.27

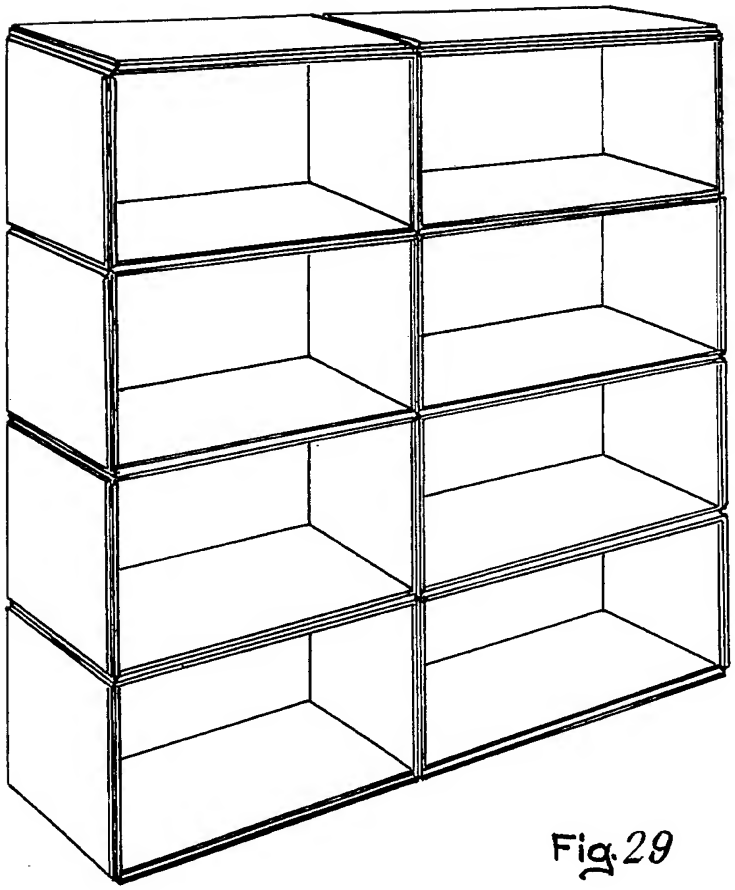


Fig.29

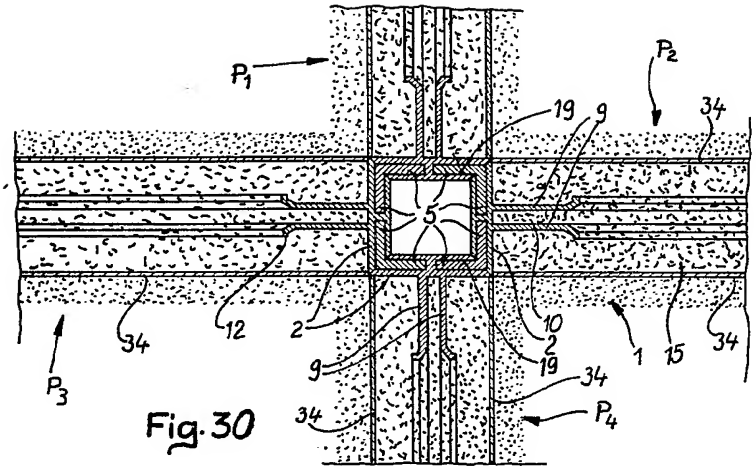


Fig. 30

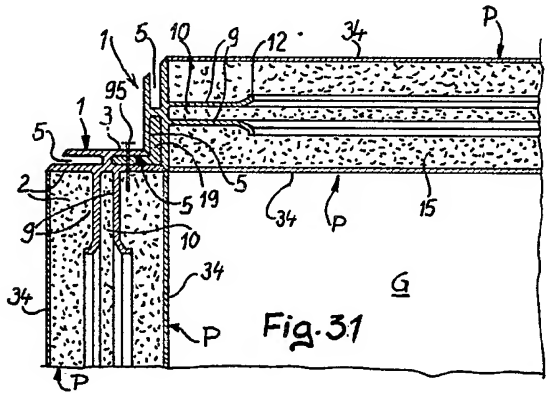


Fig. 31